

## REMARKS

### ***Special Status***

Applicant draws attention to the pendency of this application, which is now greater than five years. Accordingly, under MPEP 708.01(I), this application is now entitled to “special” status.

### ***Claim amendment***

Applicant amends claim 9 to depend on claim 8 instead of claim 7, thereby addressing an overlooked absence of antecedent basis.

### ***Berrada***

*Berrada*<sup>1</sup> teaches a satellite communication system for providing interactive TV services. The *Berrada* system features a hub 1 that mediates communication between ground stations (see FIG. 1).

A difficulty that arises in such systems is that two ground stations may wish to send a message at the same time. In that case, two ground stations will be attempting to use the same time slot to send a message. This causes contention for a particular time slot. *Berrada* teaches a way to reduce the probability of such collisions.

Aside from their common use of the term “message slot,” the *Berrada* system and Applicant’s system have little in common. In *Berrada*, a message slot is a time interval, whereas in Applicant’s system, a message slot is a memory location. This fundamental distinction results in significant conceptual differences.

In *Berrada*, when a ground station wishes to send a message, it packages the content and waits for the beginning of a suitable time slot. When the time slot begins, the ground station transmits the message during that time slot. This is conceptually different from posting a message in a memory location (i.e. a “message slot”) that is made up of message slots strung together, by pointers, into a message list.

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<sup>1</sup> *Berrada*, U.S. Patent No. 6,151,329.

This fundamental distinction between time slots and memory slots inevitably makes any mapping between *Berrada* and the claimed invention contrived.

For example, because the *Berrada* message slots are time intervals, there can be no “message list accessible to a plurality of processors.” While it is true that time intervals occur sequentially, these intervals are simply transitory events that disappear forever. They do not form a message list.

In contrast, when message slots are regarded as memory locations, the idea of a message list accessible to all processors makes perfect sense.

In addition, since time travel is not possible, one cannot possibly “modify” a *Berrada* message slot. Once a *Berrada* message slot occurs, the events occurring within it cannot be undone, any more than one can travel backward in time to modify what one was done during an earlier time slot.

Once again, when message slots are regarded as memory locations, the idea of modifying a message slot makes perfect sense.

***Section 102 rejection of claim 1***

Claim 1 recites

“modifying said new-message slot to specify an intended recipient of said message.”

Conceptually, this step is not possible in a system like *Berrada*'s. In *Berrada*, a message slot is simply an interval of time during which one transmits a message. For example, If a message slot lasts from 9:00 AM to 10:00 AM, one must specify the intended recipient of the message sometime during that half hour message slot. One cannot simply come back at noon to “modify” a message slot that ended two hours earlier.

*Berrada* allegedly teaches the step of modifying a message slot in two passages. The first passage reads as follows:

“(a) if the reference number of the minislot does not correspond to any of the slots of the ASS [Available Slot Set], it means that this number corresponds to a reserved slot and that the request for retransmission has been successful: the station sends its message in this reserved data slot, and will then exit the protocol;

(b) if the reference number of the minislot corresponds to a slot of the ASS, it means that the request has failed, and this slot is available for new messages, while the concerned station has to use the CMP [Common Minislot Pool] for retransmitting its request.”<sup>2</sup>

This passage has nothing to do with modifying a new-message slot to specify an intended recipient of a message, as required by the claim. The passage merely describes how to determine if a request to retransmit a message to a recipient was successful and what the consequences are if were not. There is no suggestion that a slot has been modified to specify an intended recipient. In fact, any such specification would have had to take place before retransmission could even begin, otherwise there would be no way to know who to retransmit a message to.

The second passage is part of the following:

The feedback formulation then takes place: the requested slots are allocated to respective reservations signals (step 54), each concerned slot being then reserved, and, as already seen, the hub puts two pieces of information in each slot of the downstream frame (the status E, S or C of the data slot, and the number Jk identifying the winning minislot, i.e. the number of the reservation signal corresponding to the allowed transmission in said data slot in the next upstream frame), said downstream frame broadcasting being the step 55 of the hub procedure.<sup>3</sup>

Again, this passage has nothing to do with modifying a new-message slot to specify an intended recipient of the message. The passage only refers to certain frames that are returned by the hub to the ground station. These returned, or “downstream” frames, contain information concerning the fate of the original upstream frame, which the Examiner presumably regards as containing the message slot. Hence, any modification referred to in the foregoing passage would be a modification to a downstream frame that is different from the original upstream frame.

The remaining claims are dependent on claim 1 and are therefore patentable for at least the reasons discussed in connection with claim 1.

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<sup>2</sup> Berrada, col. 2, lines 32-45.

<sup>3</sup> Berrada, col. 4, lines 35-45.

**Section 102 rejection of claim 2**

Claim 2 recites the additional limitation of a

“message list including a first existing-message slot having a pointer to a second existing-message slot”

The Examiner draws attention to the following passage from *Berrada* as allegedly teaching the above limitation:

In fact it has been seen that the limitation of the ARRA protocol is caused by the high number of requests colliding in the CMP [“Common Minislot Pool”], said requests having very little chance to be accepted by the hub since they frequently collide in a small number of minislots.<sup>4</sup>

The cited passage merely states that in some cases, two ground stations would like to send messages at the same time. The resulting contention for the use of a particular time interval, or “message slot,” causes communication delays because such requests are rejected by the hub.

This has nothing to do with inserting a message slot into a message list, let alone one having an existing message slot with a pointer to a second existing message slot. Since message slots are essentially time intervals, one cannot simply “insert” message slots in *Berrada* any more than one can insert an extra hour in the day.

Moreover, there is nothing in *Berrada* like a pointer to a message slot. The *Berrada* message slots, being essentially time intervals, follow each other in sequence. One cannot simply jump to a new time interval (i.e. message slot) by following a pointer and returning to an earlier time interval.

Accordingly, in addition to being patentable for reasons discussed in connection with claim 1, claim 2 is also patentable because the cited art fails to teach the additional limitation of claim 2.

**Section 102 rejection of claim 3**

Claim 3 recites the additional limitation of

“setting a first pointer on said new-message slot to point to said first existing-message slot and a second

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<sup>4</sup> *Berrada*, col. 3, lines 20-24.

pointer on said new-message slot to point to said second existing message-slot"

The Examiner draws attention to col. 5, lines 40-49 as disclosing this limitation.

The Examiner draws attention to the following passage as allegedly teaching the above limitation:

(a) if a message has been transmitted in slot D of upstream frame I (output N, corresponding to the situation "no collision"), the station looks at the feedback contained in slot D of the received downstream frame: if the status is S (successful transmission), the copy of the message is deleted (step 47);<sup>5</sup>

In *Berrada*, when a station sends a message in a message slot (i.e. slot D of upstream frame I), it retains a copy of that message in case of a delivery failure. Shortly after the message is sent, the hub replies, in a downstream frame, with a message indicating whether or not the message was sent. Upon receiving such confirmation, the station deletes its retained copy of the message.

It is clear that the foregoing passage has nothing to do with inserting a new message slot into a message list. Nor is there any discussion of setting two different pointers in that new message slot to point to two different existing message slots. Operation like these simply make no sense when the message slots are time intervals, as disclosed by *Berrada*, rather than memory locations, as disclosed in Applicant's specification.

Accordingly, in addition to being patentable for reasons discussed in connection with its parent claims, claim 3 is also patentable because the cited art fails to teach the additional limitation of claim 3.

#### ***Section 102 rejection of claim 4***

The Examiner draws attention to the following passage as allegedly teaching this limitation:

(b) contention delay, i.e. the time period between the beginning of the frame in which the message is transmitted for the first time and the complete reception of the frame in which a request is received

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<sup>5</sup> *Berrada*, col. 4, lines 1-10.

successfully in the hub;

(c) waiting for transmission delay, i.e. the time period between the complete reception of the frame in which a request is received successfully in the hub and the first slot in which the message is transmitted.<sup>6</sup>

This passage merely describes two types of time delays that can occur in the *Berrada* system. Applicant is unable to identify what the Examiner could possibly regard as pointers that are made to point to a "new-message slot."

***Section 102 rejection of claim 5***

Claim 5 recites the additional limitation of

"modifying a destination mask associated with said new-message slot"

The Examiner draws attention to the following passage as allegedly teaching this limitation:

The feedback formulation then takes place: the requested slots are allocated to respective reservations signals (step 54), each concerned slot being then reserved, and, as already seen, the hub puts two pieces of information in each slot of the downstream frame (the status E, S or C of the data slot, and the number Jk identifying the winning minislot, i.e. the number of the reservation signal corresponding to the allowed transmission in said data slot in the next upstream frame), said downstream frame broadcasting being the step 55 of the hub procedure.<sup>7</sup>

The foregoing passage describes how the hub sends a message back to the ground station using a downstream frame. According to this passage, the hub replies with information indicative of the status of the message sent by the ground station.

Applicant requests that the Examiner specify what, in the foregoing passage, is regarded as a destination mask, and how that mask specifies all intended recipients of a message in a message slot.

Accordingly, in addition to being patentable for reasons discussed in connection with its parent claims, claim 5 is also patentable because the cited art fails to teach the additional limitation of claim 5.

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<sup>6</sup> *Berrada*, col. 4, lines 60-67.

<sup>7</sup> *Berrada*, col. 4, lines 38-45.

***Section 102 rejection of claim 6***

Claim 6 recites the additional limitations of

"selecting, from a plurality of constituent data-elements of said destination mask, each of said constituent data-elements corresponding to one of said processors from said plurality of processors, a selected data-element corresponding to a selected processor; and

modifying said selected data-element to indicate that said selected processor is an intended recipient."

The Examiner draws attention to the following passage as allegedly teaching this limitation:

In fact it has been seen that the limitation of the ARRA protocol is caused by the high number of requests colliding in the CMP ["Common Minislot Pool"], said requests having very little chance to be accepted by the hub since they frequently collide in a small number of minislots.<sup>8</sup>

The Examiner has already cited this passage above in connection with claim 2 as allegedly teaching a message list having a first existing-message slot with a pointer to a second existing-message slot.

Applicant requests that the Examiner identify precisely what language in the foregoing text is believed to correspond to a "destination mask."

The Examiner also draws attention to the following passage as allegedly teaching this limitation:

(ii) if the identification of the winning slot is not J, the station cannot transmit its message: it transmits a reservation signal (step 44) in one of the minislots of the reserved slots and keeps in memory the corresponding minislot number.<sup>9</sup>

This same text has already been cited as teaching claim 1's step of "placing said message in said new-message slot." It is unclear where or how this step teaches a "destination mask." Accordingly, Applicant requests that the Examiner identify precisely what text in the foregoing passage is considered to correspond to the claimed "destination mask."

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<sup>8</sup> *Berrada*, col. 3, lines 20-24.

<sup>9</sup> *Berrada*, col. 4, lines 15-20.

Accordingly, in addition to being patentable for reasons discussed in connection with its parent claims, claim 6 is also patentable because the cited art fails to teach the additional limitation of claim 6.

***Section 102 rejection of claim 7***

Claim 7 recites the additional limitation of

updating a message directory to indicate the presence of said new-message slot in said message list, said message directory being accessible to said plurality of processors.

The Examiner draws attention to the following passage as allegedly teaching this limitation:

In fact it has been seen that the limitation of the ARRA protocol is caused by the high number of requests colliding in the CMP, said requests having very little chance to be accepted by the hub since they frequently collide in a small number of minislots. According to the invention, it has been found that the probability of collision is reduced if all the minislot areas of the frame are considered as a larger CMP. The upstream link now comprises frames including K message slots and each of these slots contains, as indicated in FIG. 3, a data slot and M minislots, the total number of minislots being K.x.M.<sup>10</sup>

The first sentence of the foregoing passage has already been discussed in connection with claim 2 as drawing attention to the possibility of a collision when to ground stations wish to send a message at the same time. The remainder of the passage describes a way to reduce the probability of such collisions.

Applicant requests that the Examiner specify precisely where the foregoing passage teaches anything that could possibly be construed as claim 7's "message directory" and how that message directory would indicate the presence of a new message slot in a message list.

Accordingly, in addition to being patentable for reasons discussed in connection with claim 1, claim 7 is also patentable because the cited art fails to teach the additional limitation of claim 7.

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<sup>10</sup> Berrada, col. 3, lines 23-30.



***Section 102 rejection of claim 8***

Claim 8 recites the additional limitation of

“updating an attention mask containing information indicative of which processors from said plurality of processors are intended recipients of messages contained in said message list.”

The Examiner draws attention to an extended passage at col. 4, lines 47-65 as teaching this additional limitation.

The cited passage discusses a way to avoid jitter at high loads. There appears to be no discussion of anything like an attention mask from which one might identify intended recipients of a message. Applicant requests that the Examiner quote verbatim the particular language that allegedly refers to this attention mask.

***Summary***

Now pending in this application are claims 1-9, of which claim 1 is independent.

Applicant notes that during the extended prosecution of this application, the cited art has strayed progressively further from the subject matter of the application. The first office action cited a reference from class 709, which was the same class to which the present application was assigned. The second office action cited a reference from a class identified as “electrical communication.” This third office action now cites a reference from a class identified as “multiplex communication.”

Applicant submits that during this application's extended pendency, which is now slightly over half a decade, the Office has had ample opportunity to identify suitable prior art. Applicant appreciates the Office's rigorous examination. However, the continued absence of relevant prior art, and the reduced likelihood of finding any such art in the progressively more remote fields that are now being searched, suggests that the Office has done all that is humanly possible to ensure the patentability of the claimed subject matter. Accordingly, Applicant requests that prosecution be brought to a close and that the patent be allowed to issue, so that the remainder of the rapidly dwindling patent term can still be enjoyed.

That Applicant has argued only certain grounds for patentability is not meant as an admission that no other grounds for patentability exist, either for those claims specifically discussed, or those claims that were not discussed.

No additional fees are believed to be due in connection with the filing of this response. However, to the extent fees are due, or if a refund is forthcoming, please adjust our deposit account 06-1050, referencing attorney docket "07072-127001."

Respectfully submitted,

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